

In the Claims

Claims 1-51 (Cancelled)

Claim 52 (Currently amended): A composition comprising a multi-functional contrast agent and a pharmaceutically acceptable carrier, wherein said contrast agent comprises: i) a CdS:Mn/ZnS core/shell quantum dot, wherein said quantum dot is fluorescent, radio-opaque, and paramagnetic, wherein said ZnS shell of said contrast agent is amine functionalized, and wherein said contrast agent further comprises a targeting moiety conjugated to said quantum dot; or ii) a CdS:Mn/ZnS core/shell quantum dot, wherein said quantum dot is fluorescent, radio-opaque, and paramagnetic, and wherein said CdS:Mn/ZnS core/shell quantum dot further comprises a Gd (III)/SiO₂ coating (outer shell) or a Dys/SiO₂ coating (outer shell).

Claim 53 (Previously presented): The composition of claim 52, further comprising a pharmaceutically active agent.

Claim 54 (Previously presented): A multi-functional contrast agent comprising a CdS:Mn/ZnS core/shell quantum dot, wherein said quantum dot is fluorescent, radio-opaque, and paramagnetic, and wherein said CdS:Mn/ZnS core/shell quantum dot further comprises a Gd (III)/SiO₂ coating (outer shell) or a Dys/SiO₂ coating (outer shell).

Claim 55 (Previously presented): The contrast agent of claim 54, wherein said contrast agent further comprises a targeting moiety conjugated to said quantum dot.

Claim 56 (Previously presented): The contrast agent of claim 54, wherein said contrast agent further comprises a targeting moiety conjugated to said quantum dot, wherein said targeting moiety comprises a TAT peptide or folic acid.

Claim 57 (Previously presented): The contrast agent of claim 54, wherein said contrast agent further comprises a coating (outer shell) surrounding said ZnS shell.

Claim 58 (Previously presented): The contrast agent of claim 54, wherein said contrast agent further comprises a coating (outer shell) and a targeting moiety conjugated to said coating.

Claim 59 (Previously presented): The contrast agent of claim 54, wherein said ZnS shell of said contrast agent is amine functionalized.

Claim 60 (Previously presented): The contrast agent of claim 54, wherein said contrast agent further comprises an amine functionalized silica coating around said ZnS shell.

Claim 61 (Previously presented): The contrast agent of claim 54, wherein said quantum dot is water-dispersable.

Claim 62 (Previously presented): The contrast agent of claim 54, wherein said quantum dot is doped with a fluorescent dye molecule or a paramagnetic material, or both.

Claim 63 (Previously presented): The contrast agent of claim 54, wherein said quantum dot further comprises a coating that renders said contrast agent activatable in a cell.

Claim 64 (Previously presented): The contrast agent of claim 54, wherein said quantum dot further comprises a coating that renders said contrast agent activatable in a cell, and wherein said coating is a carbohydrate selected from the group consisting of galactose, glycogen, or glucose.

Claim 65 (Previously presented): The contrast agent of claim 54, wherein said quantum dot comprises said Gd (III)/SiO₂ coating (outer shell), and wherein said quantum dot further comprises a carbohydrate that blocks the ninth coordination site of Gd in the absence of a carbohydrate-degrading enzyme.

Claim 66 (Previously presented): The contrast agent of claim 54, wherein said contrast agent is associated with at least a portion of an implantable or deployable medical device.